

Amendments to the Drawings:

The drawing sheet attached in connection with the above-identified application containing FIG. 10 is being presented as a replacement sheet to be substituted for the previously submitted drawing sheet containing FIG. 10. The drawing FIG. 10 has been amended.

The specific change which has been made to FIG. 10 is that the arrow from S25 to S28 has been labeled "I" rather than "YES".

REMARKS

Status of Claims:

Claims 1-8 are present for examination.

Claim for Foreign Priority:

The Examiner did not mark boxes 12), 12) a), or 12) a) 1 of the present Office Action Summary to acknowledge that a certified copy of the priority document has been received. Thus, applicant requests that the Examiner acknowledge receipt of the certified copy of the priority document.

Drawings:

The drawing FIG. 10 has been amended so that the arrow from S25 to S28 is labeled “I” rather than “YES”, in accordance with the specification at page 18, lines 21-22. No new matter has been added.

Claim Rejections:

Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsumagari et al. (U.S. Patent Number 6,798,976) (hereinafter Tsumagari).

Claims 2-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumagari in view of Toebe, VIII et al. (U.S. Patent Number 5,959,690) (hereinafter Toebe).

With respect to claims 1-8, as amended, the rejections are respectfully traversed.

Independent claim 1, as amended, recites a picture compression managing apparatus, comprising:

“a picture compression processor for compressing a moving picture, said moving picture comprising a plurality of frames, said picture compression processor comprising:

an interface section for receiving an index affix request, said index affix request being a request to affix an index to a frame of said plurality of frames, said frame being compressed by said picture compression processor into a compressed frame to be stored in a file in a recording medium;

an index producing section for producing, in response to said index affix request, a marking position that is a position in said file at which said compressed frame is stored with respect to a leading position of said file, said index producing section carrying out storage of said marking position as a particular index into said recording medium; and

a frame memorizing section, said frame memorizing section being configured to store, if said frame is compressed by said picture compression processor into said compressed frame using one or more reference frames of said plurality of frames, said one or more reference frames in decompressed form into said recording medium.” (Emphasis Added).

A picture compression managing apparatus including the above-quoted features has at least the advantages that: (i) an interface section allows for receiving an index affix request to affix an index to a frame of a plurality of frames of a moving picture, where the frame is compressed by a picture compression processor into a compressed frame to be stored in a file in a recording medium; (ii) an index producing section allows for producing a marking position that is a position in the file at which the compressed frame is stored with respect to a leading position of the file, and the index producing section carries out storage of the marking position as a particular index into the recording medium; and (iii) a frame memorizing section is configured to store, if the frame is compressed by the picture compression processor into the compressed frame using one or more reference frames of the plurality of frames, the one or more reference frames in decompressed form into the recording medium.

(Specification; page 2, lines 12-19; page 7, lines 5-19; page 9, line 23 to page 10, line 14; page 16, lines 6-21; FIGs. 1 and 6).

Such a picture compression managing apparatus allows for compressing a frame into a compressed frame using one or more reference frames, marking a position of the compressed frame in a file with an index, and storing the one or more reference frames in decompressed form. If the compressed frame is later accessed using the index to jump to the compressed frame, since the one or more reference frames have been stored in decompressed form, there is no need to decompress the one or more reference frames, and a

decompression operation to decompress the compressed frame can be immediately carried out. Thus, reproduction can be started with the decompression operation for the desired frame alone and, as a result, the decompression operation of the compressed frame can be carried out at a high speed. (Specification; page 16, lines 6-21).

Independent claim 1 has been amended with features of a reference frame that are similar to features that were previously in claim 2 before claim 2 was amended. Thus, patentable difference of claim 1 with respect to both the Tsumagari and Toebe references will now be discussed.

Neither Tsumagari nor Toebe, alone or in combination, disclose or suggest a picture compression managing apparatus including the above-quoted features with a frame memorizing section that is configured to store, if a frame that is the subject of an index affix request is compressed by a picture compression processor into a compressed frame using one or more reference frames, the one or more reference frames in decompressed form into a recording medium.

The Examiner recognizes that, “Tsumagari fails to disclose the recited reference frame producing section for producing at least one of remaining pictures of a succession the input pictures the at least one of remaining pictures being used as at least one reference frame in later compression the current input picture into a compressed picture”. (Emphasis Added). The Examiner then points to Toebe as teaching, “when a target frame is selected for access ... the index is analyzed to determine which I or P frame must be parsed prior to the parsing of the target frame in order to place the player in the proper state for parsing the target frame”. (Emphasis Added).

The Examiner is correct in asserting that the system of Toebe requires determining which I and P frames must be parsed prior to the parsing of a target frame in order to place the player in the proper state for parsing the target frame, because the system of Toebe requires parsing reference frames before parsing a target frame. (Toebe; column 11, line 64 to column 12, line 6). This is exactly one of the problems that embodiments of the present invention seek to address.

As explained in the example in column 13 of Toebees, in the system of Toebees, if a target frame is a B frame, then reference frames on which the B frame depends must be parsed correctly and be resident in the appropriate buffers in order for the B frame to be parsed. (Toebees; column 13, lines 35-55). Thus, in the example of Toebees, if picture 8 is a B frame that depends on pictures 9 and 6, and picture 6 depends on picture 3, which depends on picture 0, then the system of Toebees must parse pictures 0, 3, 6, and 9 before attempting to parse and play picture 8. (Toebees; FIG. 5; column 13, lines 35-55). As a consequence, the system of Toebees cannot immediately start parsing the target frame, but must first parse the reference frames on which the target frame depends, which requires placing the player in Toebees into a suppression mode and takes up processing time. (Toebees; column 13, line 55 to column 14, line 2).

In contrast, a picture compression managing apparatus including the above-quoted features as claimed in claim 1 allows for storing one or more reference frames in decompressed form into a recording medium, where the one or more reference frames have been used in the compression of a frame into a compressed frame. By storing the one or more reference frames in decompressed form, the compressed frame of interest can be decompressed using the one or more reference frames that have been stored in decompressed form without having to first decompress the one or more reference frames. As a consequence, the decompressing operation on the compressed frame can be carried out immediately when desired without first having to parse the one or more reference frames and, thus, the decompression operation on the compressed frame can be carried out at a high speed. (Applicant's Specification; page 16, lines 3-21).

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by the Tsumagari and Toebees references and, hence, is believed to be allowable. The Patent Office has not made out a *prima facie* case of obviousness under 35 U.S.C. 103.

Independent claim 4 recites a picture decompression processor with features similar to features of a picture compression managing apparatus of independent claim 1 and, hence, is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

Independent claim 5 recites a picture compression managing method with features similar to features of a picture compression managing apparatus of independent claim 1 and, hence, is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

Independent claim 8 recites a picture decompression processing method with features similar to features of a picture compression managing apparatus of independent claim 1 and, hence, is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

The dependent claims are deemed allowable for at least the same reasons indicated above with regard to the independent claims from which they depend.

Conclusion:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date December 23, 2005

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